

In order to obtain a thin-film transistor having high characteristics using a metal element for accelerating the crystallization of silicon, a nickel element is selectively added to the surface of an

) and (102) and regions (108) to (110), and a heat treatment is carried out to grow crystals (horizontal growth) in directions parallel to the substrate as indicated by arrows (104) to (107). At this point, the regions (108) to (110) having a width of 5 μm or less serve as stopper

regions so that horizontal growth starting from the regions (101) and (102) stops there. In this way, the horizontal growth regions can be formed with high controllability. Then a circuit such as a shift register can be constructed with a region having the same crystal growth form.